Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_

**Chapter 11 and 14 Test Honors Biology, Spring 2011**

Please answer all questions in paragraph form. Read the questions carefully to make sure you fully understand what each one is asking for. Be sure to be very specific when answering each question and make your answer clear and understandable. Write legibly!! Good luck!

1. Describe two patterns of inheritance that were discovered after Mendel’s time. Provide an example of how each pattern of inheritance affects a certain organism
2. 1. The common grackle is a species of robin-sized blackbirds that are fairly common over most of the United States. Suppose that long tails (L) were [dominant](http://www.ksu.edu/biology/pob/genetics/defin.htm#dom) to short tails in these birds. A female short-tailed grackle mates with a male long-tailed grackle that had one parent with a long tail and one parent with a short tail. What is the male's [genotype](http://www.ksu.edu/biology/pob/genetics/defin.htm#gen)? Use a Punnett Square to explain your answer.
   2. About 70% of Americans perceive a bitter taste from the chemical phenylthiocarbamide (PTC). The ability to taste this chemical results from a [dominant](http://www.ksu.edu/biology/pob/genetics/defin.htm#dom) allele (T) and not being able to taste PTC is the result of having two [recessive](http://www.ksu.edu/biology/pob/genetics/defin.htm#rec) alleles (t). Albinism is a recessive trait that results in the lack of pigment in the skin. Normal pigment is[dominant](http://www.ksu.edu/biology/pob/genetics/defin.htm#dom) (A). A heterozygous pigmented woman who cannot taste PTC marries a [homozygous](http://www.ksu.edu/biology/pob/genetics/defin.htm#hom), normally pigmented man who is heterozygous for tasting PTC.
      1. What is the phenotypic ratio that results from this dihybrid cross?
3. Draw, label, and explain the steps that occur during the process of meiosis with a cell that has a diploid number of 4. Color each chromosome a different color.
4. Cross a blood type O individual with an individual with blood type AB. What are the genotypic and phenotypic ratios that result?
5. Hemophilia is a sex-linked recessive trait. Show a cross between a woman who is a carrier for hemophilia and a hemophiliac man.
   1. What percentage of their children will be male and hemophiliac?
   2. What percentage will be carriers for hemophilia?
   3. What percentage will be normal?